7. A_Seven - Mediant

Program Name: A_Seven.java   **Input File: a_seven.dat**

In music, a **mediant** is the third tone of a major scale, sung in solfege as mi. In math there is likely no such thing as a **mediant**, but for now, we'll just make up a new definition for a math based **mediant**.

A **mediant** is a number that is a variation of another, based on the <u>median</u> of the digits of the number, according to the following rules:
1. First find the median of the digits, then find the digit in the number which is closest to but not larger than the median value, and then change that digit according to the rules below. If more than one instance of this value exists, use the leftmost instance. For example, in the value 9999, the found digit value is clearly 9, and the one that is changed is the leftmost 9.
2. If that digit is 0, 1, or 2, replace it with the largest digit in the number.
3. If that digit is 3, 4, or 5, replace it with the smallest digit in the number.
4. If that digit is 6, 7, or 8, replace it with the ones place of the sum of the digits.
5. If that digit is 9, replace it with 0.

By definition, the median of a list of numbers is the middle value when the list is sorted. If the number of items in the list is even, and the two middle numbers are different, the median is the average of the two. For example, the median of the values 1, 2, 3 and 4 is 2.5, the average of 2 and 3, therefore the number chosen in this case would be the 2, which is closest, but not larger than 2.5.

In the first example below, the median of the value 123 is 2, which is replaced by 3, the largest digit of the number.
The value 745 becomes 744 since the median is 5, which is replaced by 4, the smallest digit.

Input: A series of integer values, N, where 100 <= N < 10000.
Output: The **mediant** of each value, as defined in the rules listed above.

Sample Input:
```
123
745
1689
9999
```

Sample output:
```
133
744
1489
999
```
999 (note: `0999` is incorrect)